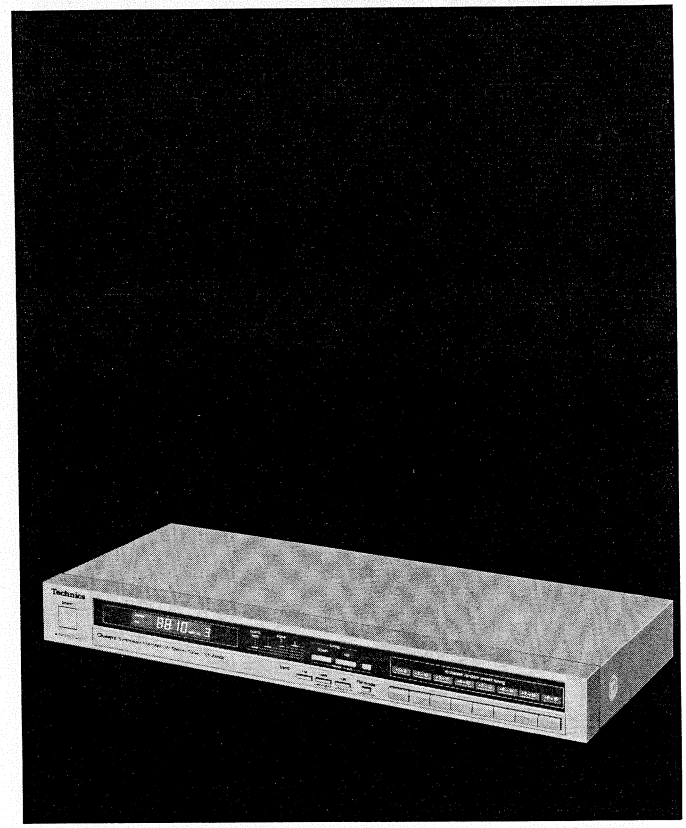
Technics

QUARTZ Synthesizer
FM/MW/LW Stereo Tuner

ST-Z450L

OPERATING INSTRUCTIONS



●Cabinet colour differs according to area.

Notes:

- ●Specifications differ according to the area code.
- ●The "EK" area code, for example, indicates United Kingdom specifications.
- ●The "EK" indication is shown on the packing case and serial number tag.

Before operating this unit, please read these instructions completely.

Dear Stereo Fan

We want to thank you for selecting this product and to welcome you to the growing family of satisfied Technics product owners around the world.
We feel certain you will get maximum enjoyment from this new addition to your home.
Please read these operating instructions carefully, and be sure to keep them handy for convenient reference.

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ACCESSORIES

- FM indoor antenna 1
- AM loop antenna 1
- AM antenna holders 2
- Screws 2
- Stereo connection cable 1
- AC power supply cord 1
- Attachment plug 1

FOR UNITED KINGDOM

("EK" area code model only)

The "EK" indication is shown on the name plate.

Important

THE WIRES IN THIS MAINS LEAD ARE COLOURED IN ACCORDANCE WITH THE FOLLOWING CODE.

BLUE: NEUTRAL
BROWN: LIVE

As the colours of the wires in the mains lead of this unit may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows. The wire which is coloured BLUE must be connected to the terminal which is marked with the letter N or coloured BLACK.
The wire which is coloured BROWN must be connected to the terminal which is marked with the letter L or coloured RED.

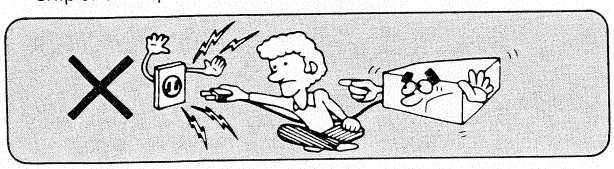
MAINTENANCE OF EXTERNAL SURFACES

To clean, use a soft dry cloth.
If the surfaces are extremely dirty, use a soft cloth, dipped into a soap and water solution or a weak detergent solution.
Wring the cloth well before wiping the unit.
Wipe once again with a soft dry cloth.
Never use alcohol, paint thinner, benzine, nor a chemically treated cloth to clean this unit.
Such chemicals may damage the finish of your unit.

FOR SAFE USE OF THIS UNIT

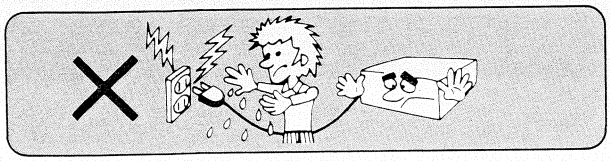
■ Use a standard electrical AC wall outlet

1. **Use from an AC power source of high voltage, such as for air conditioners, is very dangerous.**
   Be extremely careful not to make a connection to the electrical outlet for a large air conditioner or central-heating unit which uses high voltage, because there is the possibility of fire.
2. **A DC power source cannot be used.**
   Be sure to check the power source carefully, especially on a ship or other place where DC is used.



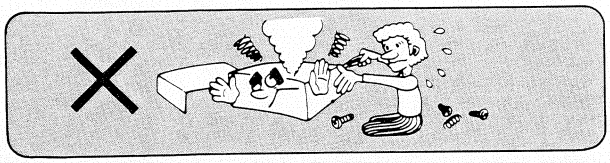
■ Connection and removal of the power cord plug

1. **Wet hands are dangerous.**
   A dangerous electric shock may result if the plug is touched by wet hands.
2. **Don't pull the power cord.**
   Always grasp the plug; never pull the cord itself.



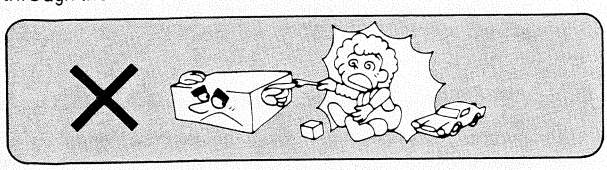
■ Never attempt to repair or reconstruct this unit

A serious electric shock might occur if this unit is repaired, disassembled or reconstructed by unauthorized persons, or if the internal parts are accidently touched.



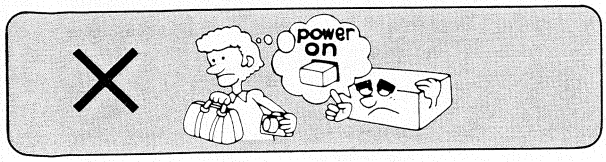
■ For families with children

Never permit children to put anything, especially metal, inside this unit. A serious electric shock or malfunction could occur if articles such as coins, needles, screwdrivers, etc. are inserted through the ventilation holes, etc. of this unit.



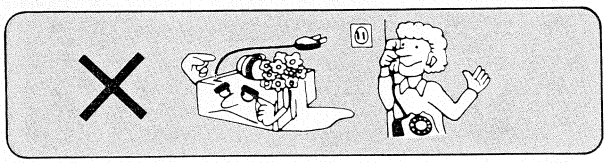
■ Turn off after use

If the unit is left for a long time with the power on, this will not only shorten its useful operation life, but may also cause other unexpected trouble.



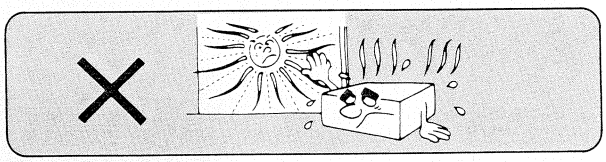
■ If water is spilled on the unit

Be extremely careful if water is spilled on the unit, because a fire or serious electric shock might occur. Immediately disconnect the power cord plug, and consult with your dealer.



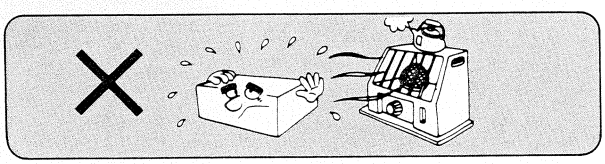
■ Place the unit where it will be well ventilated, and away from direct sunlight

Place this unit at least 10 cm (4") away from wall surfaces, etc., and away from direct sunlight.



■ Keep the unit away from heaters, etc.

Heat can damage the external surfaces as well as internal circuits and components.

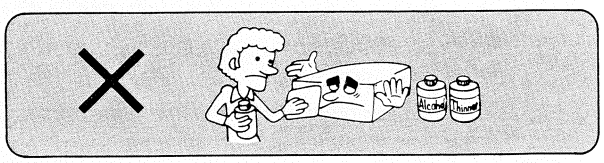


■ Avoid spray-type insecticides

Insecticides might cause cracks or "cloudiness" in the cabinet and plastic parts of this unit. The gas used in such sprays might, moreover, be ignited suddenly.

■ Never use alcohol or paint thinner

These and similar chemicals should never be used, because they may damage the finish.

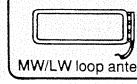


■ If trouble occurs

If, during operation, the sound is interrupted or indicators no longer illuminate, or if abnormal odor or smoke is detected, immediately disconnect the power cord plug, and contact your dealer or an Authorized Service Center.

CONNECTIONS

Important!



If this antenna is not installed, MW/LW broadcasts will not be received.

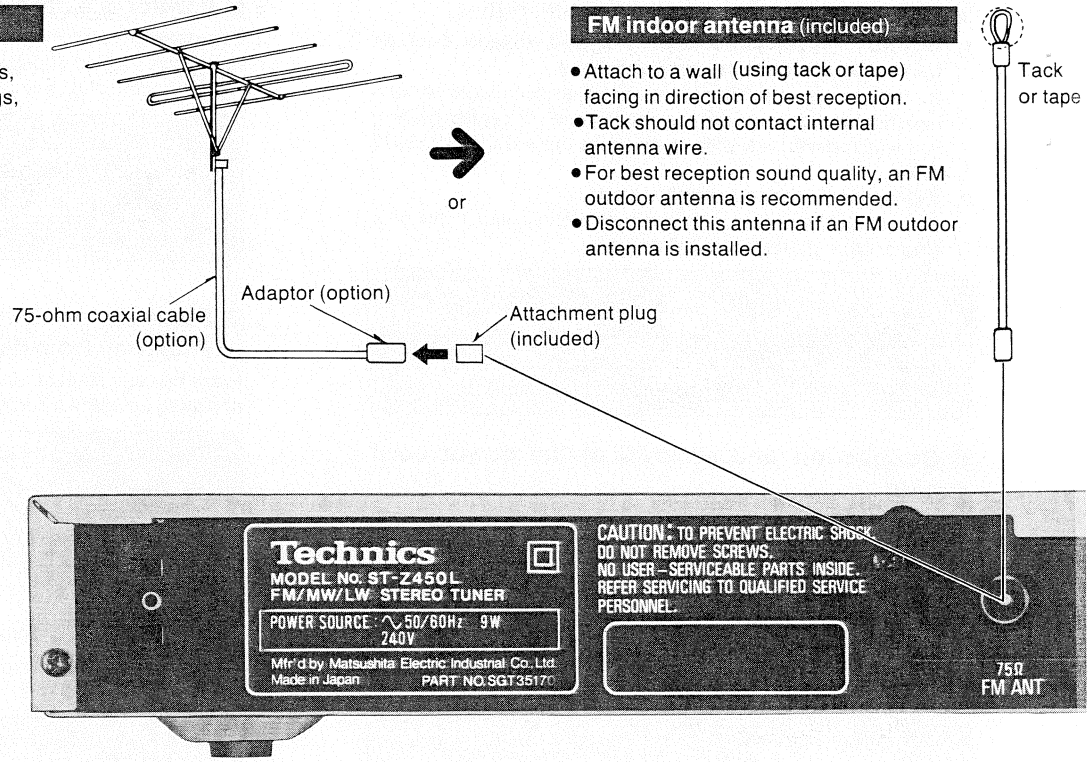
FM outdoor antenna (option)

(Necessary in mountainous regions, inside reinforced-concrete buildings, etc.)

or

FM indoor antenna (included)

- Attach to a wall (using tack or tape) facing in direction of best reception.
- Tack should not contact internal antenna wire.
- For best reception sound quality, an FM outdoor antenna is recommended.
- Disconnect this antenna if an FM outdoor antenna is installed.


Tack or tape
75-ohm coaxial cable (option)
Adaptor (option)
Attachment plug (included)
Technics
MODEL NO. ST-Z450L
FM/MW/LW STEREO TUNER
POWER SOURCE: ~50/60Hz 9W 240V
Mfr'd by Matsushita Electric Industrial Co. Ltd.
Made in Japan
PART NO. SGT3517
CAUTION: TO PREVENT ELECTRIC SHOCK DO NOT REMOVE SCREWS. NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.
75Ω FM ANT

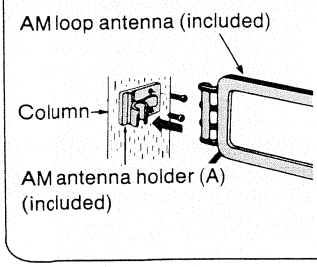
Installation of the AM (MW/LW) loop antenna

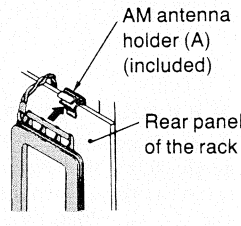
Pay attention to the following points when attaching the antenna.

1) Do not attach it horizontally (to do so would impair reception).
2) Do not attach it close to metal surfaces (to do so would result in noise).
3) Do not attach it close to power cords, speaker wires, etc. (to do so would result in noise).
4) Do not attach it close to a tape deck (when the tape deck is being used, chirping or beeping sounds may be received).

When attaching the antenna to a wall, column or rack

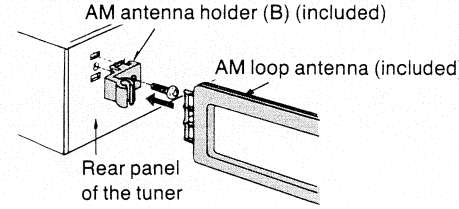
Find the height and direction of the antenna where reception is best and then fix it vertically to the wall, rack, etc.

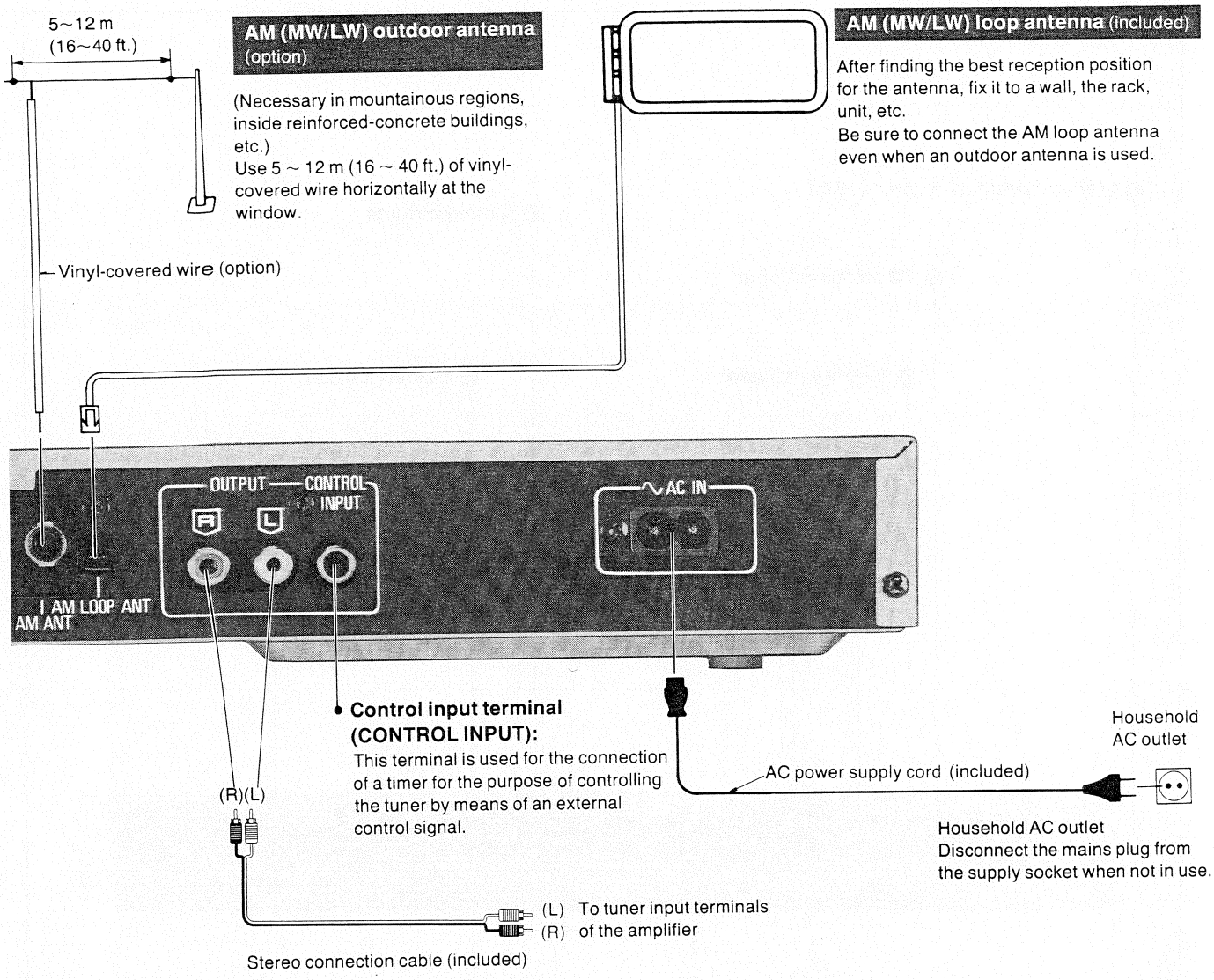




When attaching the antenna to the unit

This type of installation may cause impaired reception or result in signal noise. If possible, attach the antenna to the rack, a wall, or a column.
Move the antenna toward the right or left to find the point of best reception.




5~12 m
(16~40 ft.)
AM (MW/LW) outdoor antenna
(option)
(Necessary in mountainous regions, inside reinforced-concrete buildings, etc.)
Use 5 ~ 12 m (16 ~ 40 ft.) of vinyl-covered wire horizontally at the window.
Vinyl-covered wire (option)
AM (MW/LW) loop antenna (included)
After finding the best reception position for the antenna, fix it to a wall, the rack, unit, etc.
Be sure to connect the AM loop antenna even when an outdoor antenna is used.
OUTPUT
CONTROL INPUT
AC IN
AM LOOP ANT
AM ANT
Control input terminal
(CONTROL INPUT):
This terminal is used for the connection of a timer for the purpose of controlling the tuner by means of an external control signal.
Household AC outlet
AC power supply cord (included)
Household AC outlet
Disconnect the mains plug from the supply socket when not in use.
(R)(L)
(L) To tuner input terminals
(R) of the amplifier
Stereo connection cable (included)

"MOST-RECENT" MEMORY AND "BACK-UP" MEMORY

In addition to the preset memory function, this tuner also features a "most-recent" memory function and a "back-up" memory function.

"Most-recent" memory

The most-recent memory is a system by which the unit "remembers" the FM or AM (MW/LW) broadcast station last heard when any of the functions of this unit are turned off, and automatically tunes to that station the next time the power is turned on.

"Back-up" memory

This is the function which preserves the preset memory and most-recent memory functions. In the event of a power failure, or if the power cord of the tuner is disconnected from the electric outlet, the back-up memory will preserve the preset memory and most-recent memory functions for as long as approximately one week.

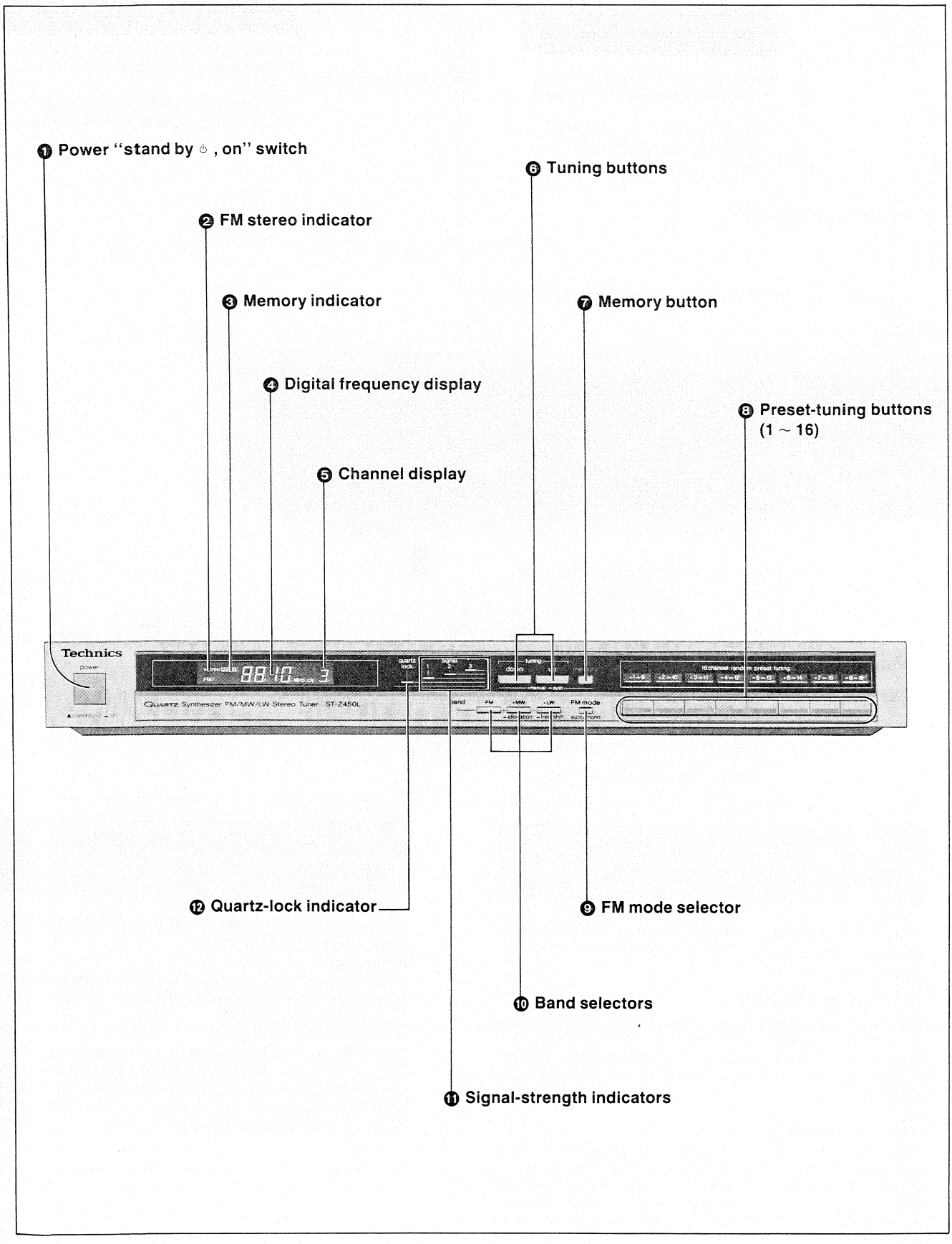
TO PREVENT ERASING THE MEMORY

If the power supply is interrupted for one week or longer, the memory settings will be erased.
For example:

1) If the power cord is disconnected from the electric outlet,
2) If an audio timer is used and the timer does not operate the tuner for a week or longer,
3) If a power failure occurs, etc.

If any of the above occurs, the memory will have to be reset.
The memory in this unit is maintained by a gold capacitor. If the power supply is interrupted for a week or longer, set the power switch of the tuner to the "on" position for thirty minutes or more in order to recharge the gold capacitor.

FRONT PANEL CONTROLS AND THEIR FUNCTIONS



❶ Power "stand by ⏻ , on" switch

This switch turns on and off the secondary circuit power only. The unit is in the "stand-by" condition when this switch is set to the "stand by ⏻ " position. Regardless of the switch setting, the primary circuit is always "live" as long as the power cord is connected to an electrical outlet.

❷ FM stereo indicator (stereo)

This indicator automatically illuminates when an FM stereo broadcast is being received.

Note:

It will not illuminate if the FM mode selector is set to the mono position.

❸ Memory indicator (memo)

This indicator illuminates when the memory button is pressed.

To preset the memory manually, press the desired preset tuning button while this indicator is illuminated (within approximately 4 seconds).

If the memory is preset automatically, the indicator will not illuminate.

❹ Digital frequency display

The reception frequency of the FM, MW or LW broadcast selected by using the tuning buttons or the preset tuning buttons is indicated by a digital-type display.

❺ Channel display

The channel number selected by the preset-tuning buttons is displayed.

❻ Tuning buttons (tuning)

If the button is pressed momentarily and then released, the frequency will change at intervals of 0.05 MHz for FM, 9 kHz (or 10 kHz) for MW and 9kHz for LW. If the button is pressed slightly longer and then released, the station will be selected automatically. If the broadcast signals are weak, it may not be possible to make automatic selection. If this occurs, make the selection manually.

❼ Memory button (memory)

This button is used when preset memory setting of the preset-tuning buttons is made.

Note:

Refer to page 8 for information concerning preset tuning.

❽ Preset-tuning buttons (1~16)
(16 channel random preset tuning)

These buttons are used to preset FM, MW and LW broadcast frequencies into the memory of this unit, and are also pressed to select the desired preset frequencies.

Note:

Refer to page 8 for information concerning preset memory.

❾ FM mode selector (FM mode)

This unit automatically switches into the stereo mode when a stereo broadcast is received. Press this button to listen in the monaural mode. The stereo indicator will not illuminate in the monaural mode.

❿ Band selectors (band)

FM:

Press this button to listen to an FM broadcast.

MW:

Press this button to listen to an MW broadcast.

This button is also used to select a frequency step of either 9 kHz or 10 kHz.

Press this button for approximately 4 seconds to select the desired frequency step.

LW:

Press this button to listen to an LW broadcast.

This button is also used to shift the reception frequency of the unit in accordance with the transmission frequency of the broadcasting station.

When this button is pressed slightly longer, the reception frequency decreases by 0.002 MHz (2 kHz).

So, for example, to receive 153 kHz, tune to 155 kHz, and then press this button.

In order to return to the original frequency indication, press this button again slightly longer.

⓫ Signal-strength indicators (signal)

These indicators show the relative strength of broadcast signals being received by the antenna. The best condition for reception, for FM, MW and LW is when the indicators illuminate completely to the top.

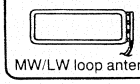
⓬ Quartz-lock indicator (quartz lock)

This indicator illuminates when tuned precisely to an FM, MW and LW station.

HOW TO PRESET RADIO BROADCAST FREQUENCIES

This unit is used to preset as many as 16 radio broadcast frequencies: FM/MW/LW random presetting. After broadcast frequencies have been preset as described below, any desired station can be quickly and easily selected by simply touching one button.

Important!



MW/LW loop antenna

If this antenna is not properly installed, MW/LW broadcasts will not be received.

■ Memory presetting

There are two types of memory presetting: automatic and manual. Select whichever is preferred.

Automatic memory presetting

The FM broadcasting stations, MW broadcasting stations, and LW broadcasting stations will be automatically preset in "channels" 1 through 16 for FM, 9 through 16 for MW, and 13 through 16 for LW, respectively.

1 **"on" (■→▲)**

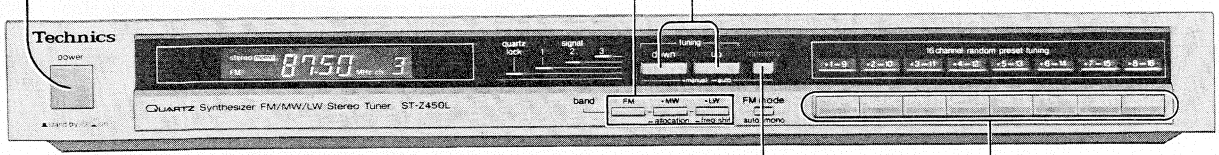
2 **Press the "FM", "MW" or "LW" button.**

For MW broadcasts:
If the frequency step for your locality is 10 kHz step, press the "MW" button for approximately 4 seconds.

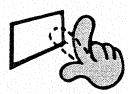
For LW broadcasts:
To receive the broadcasts of −2 kHz shifts, press the "LW" button slightly longer.

3 **Set to the minimum frequency.**

- **FM: 87.50 MHz**
- **MW: 522 kHz (9 kHz step) or 530 kHz (10 kHz step)**
- **LW: 155 kHz or 153 kHz**



4 **Press. When the frequency indication begins to change, release.**



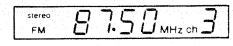
(The frequency will change upward, and the automatic presetting will begin with the broadcasting station of the lowest frequency and will continue in order.)

5 Confirm the names (call signs, etc.) of the broadcasting stations which are preset to each channel, and enter them on the file sheet (page 10).

To check the front channels (CH 1~ 8):

Press momentarily.

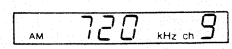
The frequency stored in the memory and channel number are displayed.



To check the back channels (CH9~16):

Press slightly longer.

The frequency stored in the memory and channel number are displayed.



Notes:

1. For automatic presetting in areas where there are less than 16 FM stations, the remaining channels (through channel 16) will be left empty. The empty channels can be filled by using manual memory presetting.
2. If a new broadcasting station is preset into a channel, the broadcasting station which was previously entered in that channel will be automatically erased.
   Note that in mountainous or remote areas, broadcasting stations which have weak broadcasting signals cannot be automatically preset into the memory.

Manual memory presetting

Stations can be freely preset to any desired channel.

① "on" (■→▬)

② Press the "FM", "MW" or "LW" button.

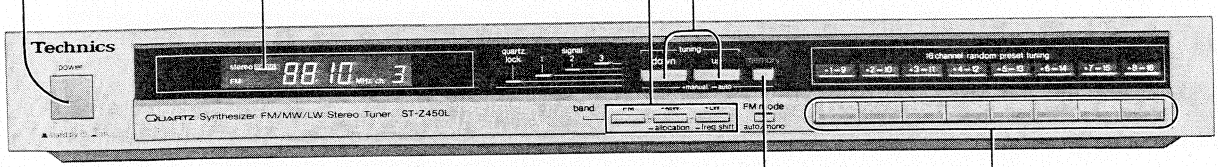
For MW broadcasts:
If the frequency step for your locality is 10 kHz step, press the "MW" button for approximately 4 seconds.

For LW broadcasts:
To receive broadcasts of −2 kHz shifts, press the "LW" button slightly longer.

● Memory indicator

③ Press the appropriate tuning button to tune to the desired broadcast.

- **Automatic tuning**
  Press the button. When the frequency indication begins to change, release the button (a broadcasting station will be selected automatically). Repeat this operation until the desired station is found.
- **Manual tuning**
  Press the button momentarily and tune to the desired station. The frequency will change each time the button is pressed.



④ Press momentarily, and then release.
(The memory indicator will illuminate for approximately 4 seconds.)

If the button is pressed continuously, the frequency will begin to change, and the memory will be preset automatically.
To stop the automatic memory presetting, once again press either the "up" button or the "down" button.

⑤ While the memory indicator is illuminated, press the button of the desired channel.
When the button is pressed, the memory indicator illumination will stop, and the presetting is complete.

- **To preset channels 1 through 8:**

Press the button momentarily, and then release.
(The frequency stored in the memory and channel number are displayed.)

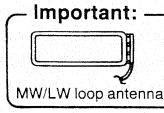
- **To preset channels 9 through 16:**

Press the button slightly longer, and then release.
(The frequency stored in the memory and channel number are displayed.)

⑥ Enter the name (call sign, etc.) of the preset broadcasting station on the station memory file sheet (page 10).
This completes the procedures for presetting radio broadcast frequencies. The other preset-tuning buttons can be preset in the same way by following steps ② through ⑤.

LISTENING TO RADIO BROADCASTS

Important:



MW/LW loop antenna

If this antenna is not properly installed, MW/LW broadcasts will not be received.

Have you completed the memory presetting (page 8) ?

1 Turn the amplifier on, and prepare it for listening to radio broadcasts.

Note:
If there is a noise during listening to an FM broadcast, turn off the power of the turntable.

2 "on" (■ → ▲)

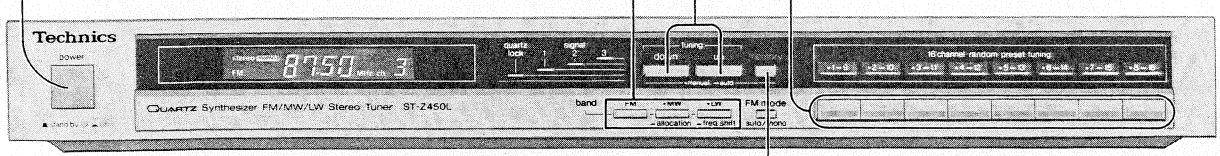
3 Press the "FM", "MW" or "LW" button.

For MW broadcasts:
If the frequency step for your locality is 10 kHz step, press the "MW" button for approximately 4 seconds.

For LW broadcasts:
To receive broadcasts of −2 kHz shifts, press the "LW" button slightly longer.

4-1 Station selection by using the tuning buttons:
Tune to the desired station by pressing one of the tuning buttons.

4-2 Station selection by using preset-tuning buttons:
Tune to the desired station by pressing the corresponding preset-tuning button.



If the broadcast signal is weak, or if there is a large amount of interference in a stereo broadcast, set to the mono position.
Note that the FM stereo indicator will not illuminate in this position.

Button / Station	CH. 1	CH. 2	CH. 3	CH. 4	CH. 5	CH. 6	CH. 7	CH. 8
FM								
MW/LW								
Button / Station	**CH. 9**	**CH. 10**	**CH. 11**	**CH. 12**	**CH. 13**	**CH. 14**	**CH. 15**	**CH. 16**
FM								
MW/LW								

TROUBLESHOOTING GUIDE

Before requesting service for this unit, check this table to determine if the problem can be solved as described below. If the problem still persists after making these checks, or if there are symptoms of malfunction not described in this table, it is recommended that you consult the store where this unit was purchased or your local Service Center (see list included) for further information and assistance.

	Problem	Probable cause(s)	Suggested remedy
While listening to FM broadcasts	**An unusual hissing noise is heard when listening to the broadcast in stereo, but not heard when listening monaurally.**	A slight noise may be heard because the method used for modulation of FM stereo broadcasts is different than that used for monaural broadcasts.	• Try reducing the treble sound by using the treble control of the amplifier. • Set the FM mode selector to the mono position. (Note that the broadcast will then be heard as monaural sound.) • Try changing the location, height and/or direction of the antenna. • If an interior antenna is being used, change to an exterior antenna. • Try using an antenna with more elements.
	The FM stereo indicator or quartz lock indicator flickers, without completely illuminating.	Poor location and/or direction of the antenna. Transmitting station is too far away.	• Try changing the location, height and/or direction of the antenna. • If an interior antenna is being used, change to an exterior antenna. • Try using an antenna with more elements.
	Sound is distorted and/or the volume level becomes low.	Broadcast signals are being disturbed. Nearby automobile traffic or airplanes.	
	Excessive distortion in the sound of stereo broadcasts.	Nearby building or mountain. [Multi-path distortion is being caused by the mutual interference of broadcast signals received directly from the transmitting station (direct waves) and signals being reflected from nearby buildings or mountains (reflected waves).]	
	An unusual "popping" noise is heard when automobiles pass.	Such noise is called ignition noise, and occurs while the automobile engine is running.	• Relocate the antenna and the connection wires leading to it to a place farther away from where automobiles pass.
	A strange hissing noise is produced continuously or intermittently.	Caused by the "discharge phenomenon" and the "oscillation phenomenon" of electric appliances (such as fluorescent lights, TV, small series-type motors, rectification equipment, etc.).	• Try placing this unit farther away from such equipment. • Install noise-prevention equipment on this unit or on the electric appliance.
	Station selection cannot be made by using the preset-tuning buttons.	The preset-tuning buttons have not been preset.	• Make the presettings.
	The "most-recent" memory will not be reset.	The charge of the gold capacitor which maintains the "back-up" memory is exhausted.	• Set the power switch to the "on" position for 30 minutes or more to perform the charging, and then make the memory presetting again.
While listening to MW/LW broadcasts	**An unusual "beat" sound is heard.**	Unit is being used at the same time as the television set.	• Turn off the television set, or use this unit farther away from it.
	A low-pitched "hum" sound is heard when the broadcast is tuned.	The antenna connection wires are too close to the power cord.	• Place the antenna connection wires and the power cord farther apart.
		The power supply frequency from the power cord is modulated and heard from the speakers.	• Try reversing the connection of the power cord plug. • Install a special exterior antenna.
	A strange hissing noise is produced continuously or intermittently.	Caused by the "discharge phenomenon" and the "oscillation phenomenon" of electric appliances (such as fluorescent lights, TV, small series-type motors, rectification equipment, etc.).	• Try placing this unit farther away from such equipment. • Install noise-prevention equipment on this unit or on the electric appliance.
	Station selection cannot be made by using the preset-tuning buttons.	The preset-tuning buttons have not been preset.	• Make the presettings.
		The charge of the gold capacitor which maintains the "back-up" memory is exhausted.	• Set the power switch to the "on" position for 30 minutes or more to perform the charging, and then make the memory presetting again.

TECHNICAL SPECIFICATIONS

(DIN 45 500)

■ FM TUNER SECTION

Frequency range	87.50~108.00 MHz
Sensitivity	0.95 μV (IHF, usable)
S/N 30 dB	1.0 μV (75Ω)
S/N 26 dB	0.9 μV (75Ω)
S/N 20 dB	0.8 μV (75Ω)
IHF 46 dB stereo quieting sensitivity	22 μV(75Ω)
Total harmonic distortion	
MONO	0.15%
STEREO	0.3%
S/N	
MONO	70 dB (78 dB, IHF)
STEREO	65 dB (70 dB, IHF)
Frequency response	20 Hz~15 kHz, +0.5 dB~ −1.5 dB
Alternate channel selectivity (±400 kHz)	65 dB
Capture ratio	1.0 dB
Image rejection at 98 MHz	55 dB
IF rejection at 98 MHz	90 dB
Spurious response rejection at 98 MHz	80 dB
AM suppression	55 dB
Stereo separation	
1 kHz	40 dB
10 kHz	30 dB
Carrier leak	
19 kHz	−30 dB (−35 dB, IHF)
38 kHz	−45 dB (−50 dB, IHF)
Channel balance (250 Hz~6,300 Hz)	±1.0 dB
Limiting point	1.2 μV
Bandwidth	
IF amplifier	180 kHz
FM demodulator	1000 kHz
Antenna terminals	75Ω (unbalanced)

■ AM TUNER SECTION

Frequency range	
MW	522 kHz~1611 kHz (9 kHz-step)
	530 kHz~1620 kHz (10 kHz-step)
LW	155 kHz~353 kHz (9 kHz-step)
	153 kHz~351 kHz (−2 kHz shift)
Sensitivity (S/N 20 dB)	
MW	20 μV, 300 μV/m
LW	100 μV
Selectivity (±9 kHz)	
MW (at 999 kHz)	55 dB
LW (at 254 kHz)	55 dB
Image rejection	
MW (at 999 kHz)	40 dB
LW (at 254 kHz)	40 dB
IF rejection	
MW (at 999 kHz)	60 dB
LW (at 254 kHz)	60 dB

■ GENERAL

Output voltage	0.3V (0.6V, IHF)
Power consumption	9W
Power supply	AC 50 Hz/60 Hz, 240V
Dimensions (W×H×D)	430 × 53 × 200 mm
	(16-15/16" × 2-3/32" × 7-28/32")
Weight	1.8 kg
	(4 lb.)

Note:
Specifications are subject to change without notice. Weight and dimensions shown are approximate.

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(EK)

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